

Official
Newsletter
of the
Fort Vancouver
Trades Guild

THE forge & plane

VOLUME VII, NUMBER 1

WINTER 2009

New Face at the Forge: Welcome to Wade Seiders

THE GUILD wishes to welcome Wade Seiders as a volunteer at the forge. Wade has been a farrier in the Canby, Oregon, area for over twenty-five years, so he is no stranger to hot iron. Wade went to Oregon State University and served an apprenticeship as part of that training. When asked what he disliked about being a farrier, he said that the horses were generally OK, but collecting bills (the price of being independently employed) was a real chore.

Wade has always been interested in historic artifacts, so working at the fort is a good fit for him. He has recreated some period 16th-century Viking swords, axes, rapiers, and cutlasses. Work for contemporary use includes tools, fireplace implements, and decorative objects. He is an active member of several organizations, including Oregon Farrier's and American Farrier's associations, American Bladesmith Association, Oregon Knife Collectors Association, American Horse Show Association, and Northwest Saddlebred Association. His wife, Linda, assists in his business. ♦



Photo: S. Gawrecki

Wade Seiders

The High Cost of Coal

THE SHOP has recently been supplied by the Park Service with more coal for the forges. Thanks to Harry Newton and Bob Conner for making the trip down to Monroe to pick it up. The price of coal continues to escalate. This ton cost over \$300 *more* than our last purchase. Conservation of this coal should be a primary goal of

everyone who uses the forges. Please remember to put forge fires completely out by spreading the hot coals out on the hearth and wetting them down thoroughly. A forge fire that smolders all night wastes precious resources. Screen cold forge contents before starting a fire, and be sure to salvage any usable coal or coke. If anyone does not understand these procedures please ask Ranger Bill or some more experienced smiths for help.

We must conserve coal! ♦



Photo: S. Gawrecki

Newton Forge Works Back in Biz

DEFYING THE DECLINE in the economy, Newton Forge Works reopened this March, when Harry and Ranger Bill DeBerry commenced work on the 4th Edition of the Newton Forge. It was looking good on March 18, when *F&P* did this photo shoot.

The forge was described in detail in the Winter 2006 issue of the *Forge & Plane*. Anyone who wishes to revisit the article is welcome to contact the editor for further information. ♦



Photos: S. Gawecki

Newton Forge, 4thEd., under construction
Above: Bill DeBerry demonstrates period welding techniques.
Below: Harry makes a pattern.



Off-Site Demonstration Opportunities

Champoeg State Park

**Founders' Day & 43rd Annual
Draft Horse Plowing Exhibition**
May 2, 10:00 – 3:00 • May 3, 10:00 – 2:00

Blacksmith Day July 18

To participate, please contact
Off-Site Coordinator Gary Lewis
503-256-0338
artillerymonger@msn.com

EVENTS FOR BLACKSMITHS

NWBA Spring Conference

**Ponderosa Forge
Sisters, Oregon
May 1 – 3**

Additional information:
www.blacksmith.org/drupal/

Can Iron VII

**Ness Creek, Saskatchewan
August 7 – 9**

Registration Deadline: July 20
Demonstrations/instruction by
Adrian Legge, Herfordshire, England
Additional Information:

www.caniron.ca

Great Oregon Steam Up

**Antique Powerland
Brooks, Oregon
July 25 – 26 and August 1 – 2**

Additional information
Gary Strausbaugh
cracked.anvil.forge@gmail.com

Aren't Those Traps Too Big????

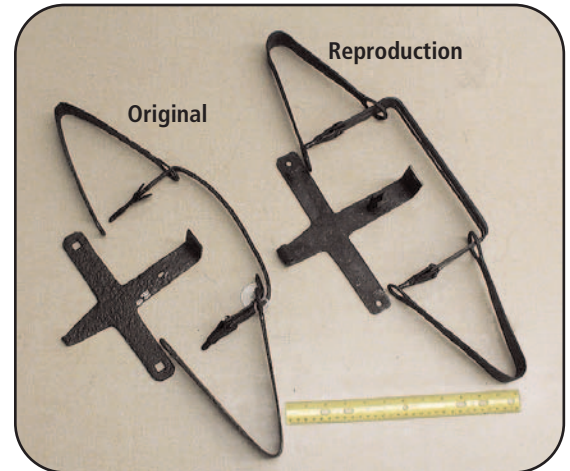
Bill DeBerry

PPOINTING TO THE BEAVER trap, “Isn’t that a bear trap?” “Isn’t that an awfully big trap?” “That can’t be a beaver trap, it’s way too big.” Many of us who work in the blacksmith shop at Fort Vancouver have fielded these and similar queries from the visiting public more than once. (I have recently found out that the interpreters at Champoeg State Heritage Area hear like comments from the public during programs where they use a reproduction trap from our forge.) With that in mind, I decided to look into the artifact collections here at the Fort and see what information could be gleaned without an all-out in-depth analysis. (If anyone wants to spearhead that project, I will gladly support it).

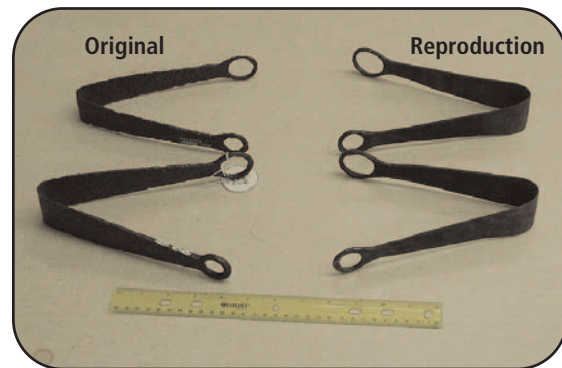
I conducted a search of the computerized accession records of the collection using various criteria and came up with the following data.

<i>Search criterion</i>	<i>Number of records (artifacts)</i>
Trap	1,628
Trap spring	686
Trap spring fragment	464
Trap jaw	434
Trap pan	134
Trap base	91
Trap ketch	65
Trap chain	14

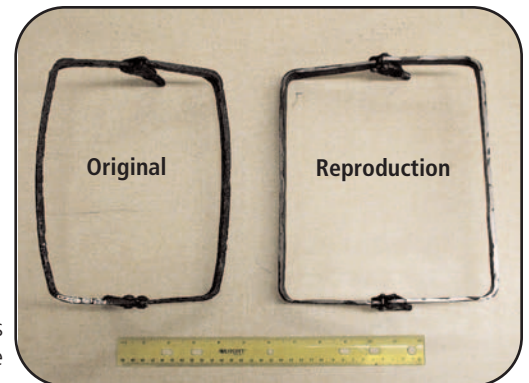
A cursory inspection of some of these artifacts revealed that the majority of items were fairly uniform in size compared one to another, and that the shape and forging technique also appeared to be fairly uniform. I retrieved several samples from the collection for closer inspection, comparing them to one of the reproduction traps that we make in the shop. Gross comparison showed that our reproduction traps are very close in size to the archaeological trap parts recovered from the site (see photos).



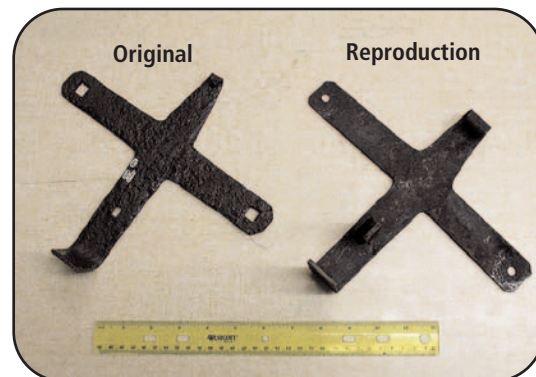
Right: Full Trap
Below: Trap springs



Photos: Bill DeBerry



Right: Trap jaws
Below: Trap base



We can thank our friend, Guild member and volunteer Dave Stearns, for coming up with the specifications for our reproduction traps. Several years ago Dave spent many days in the collection looking at the artifacts and developing methods to reproduce them. The results of his work can be seen in the traps produced by various smiths at our forge.

While I was upstairs in the archives room I also looked through an excellent reference book on traps and their use, *The Steel Trap in North America*, by Richard Gerstell (Stackpole Books: 1985). This book has a detailed discussion of traps during our era. Gerstell quotes from Peter Skene Ogden's journals about how many traps were taken along on various expeditions and what repair parts were included in the inventory. Ogden reports that over a hundred traps were lost during the 1824 – 25 season due to chain breakage. In his journals for 1826– 27 he records the following sundries supplied to the expedition: 218 beaver traps, 15 beaver trap chains, 157 beaver trap ketches, 3 pair beaver trap jaws, 29 beaver trap springs, and others. This brigade numbered 36 or 37 trappers, so the average was six traps per man. Ogden stated that the demand for trap parts exceeded the supply. John Work, who replaced Ogden as brigade leader in the Snake country in 1830 – 31, recorded how his brigade was constituted for that year: "The party consists of 41 men, 29 women, 22 boys, and 23 girls, making 115 souls who have 21 lodges . . . 272 horses . . . 337 traps." There is a great deal of additional pertinent information in this volume, and I would recommend that those interested in the topic borrow it from the library.

Available artifacts in the archaeological collections at Fort Vancouver confirm that the reproductions we make, which are on display in the shop, are fairly accurate representations of traps that were available here during the historic period. So the next time somebody thinks that one of our beaver traps is really for bear, you can set them straight! Happy forging! ♦

Bill DeBerry is Historic Programs Coordinator at Fort Vancouver.

Notes from the Fort

PREPARATIONS for the new Village House are continuing. You may have noticed a large pile of milled timbers in the fort parking lot. The maintenance division has been working on getting these timbers ready. Several smiths in the forge have been working on hardware for the building (their efforts are much appreciated), and the main door and loft door for the house are being-constructed by staff and volunteers in the carpenter's shop.

School visitation season is well under way and we need all the help we can get to make sure the blacksmith shop is covered on weekday mornings. Keep up the good work and see you at the fort. ♦ — Bill

FORT CALENDAR

April

Cultural Demonstration: Shell Work

McLoughlin House, Oregon City
Saturday, April 11, 12:00 PM – 4:00 PM

Nez Perce Chief Redheart Ceremony

(To be confirmed)
Lower Parade Ground, across from the Fort
Saturday, April 18, 10:00 AM – 1:00 PM

National Park Week

Saturday – Sunday, April 18 – 26
Saturday, April 25: National Park Family Day
11:00 AM – 4:00 PM

Discovery Walk

Friday – Sunday, April 24 – 26

8th Annual Children's Cultural Parade

Friday, April 24, 9:00 AM – 11:00 AM

May

Cultural Demonstration: Antique Buttons

McLoughlin House, Oregon City
Saturday, May 9, 12:00 PM – 4:00 PM

Memorial Day 1860's Cannon Shoot

Parade Ground, across from Howard House
Black powder demonstration
Monday, May 25, 1:30 PM

For more information on any events
360-816-6230 or www.nps.gov/fova

*Fire poker by
Bob Race
Right: full view
Below: handle detail*



gallery of guild work

The *Forge & Plane* proudly presents these photos of work by guild member Bob Race. We look forward to showcasing the work of other members and will be happy to capture your favorite piece digitally for publication.



*Bob Race has recreated
the original nonelectric
visitor alert system, not
a knocker, but a tirl-
ing and pin (right),
modeled from one in
Early American
Wrought Iron, by
Albert H. Sonn (left)*



Photos: S Gawrecki

Making Box Jaw Tongs

Mark Aspery

UNDER MOST circumstances, box jaw tongs offer a number of advantages over open-jaw tongs. Foremost is that the smith can take a relaxed grip on the tongs when forging, without fear of losing the piece. Work will not shift during forging when it is secured by the box.

In past times, making a pair of tongs was a milestone for blacksmiths. A “journeyman” smith literally went on a journey to acquire more skills before taking the master’s test. Journeyman smiths appearing at a prospective employer’s door were required to demonstrate their skills, and one of the major yardsticks was to make a pair of tongs. Making a pair of tongs takes a number of skills. Understanding the *cow poop theory* of blacksmithing is a must.

The Cow Poop Theory

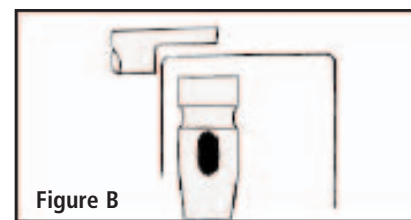
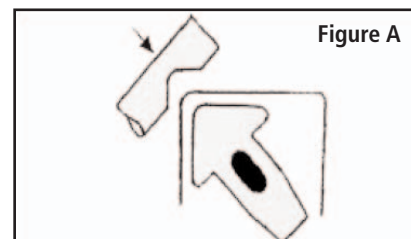
Imagine a freshly placed patty of cow poop at your feet. If you were to jump into it with both feet, where would the poop go? Out — 360 degrees out! If we imagine the face of the anvil to be the cow pasture and the hot metal to be the cow poop, your hammer becomes your feet. Striking a blow on the hot metal with the hammer will have the same result as jumping into a cow pie with both feet. The metal will spread out in a circle. If you want to draw a taper on this piece of metal, the metal that did not move in the direction of the taper will have to be hit again in order to force it to cooperate. Let’s get back to the cow poop. Suppose that we hit that cow patty with a baseball bat. Where would the poop go now? Perhaps a bit would splatter on our gloves, but most would move perpendicularly to the bat, i.e., we would have directional control of the metal. We can apply this to forging in a number of ways. We can forge the piece over the bick or horn (a built-in baseball bat); we can use the peen of our hammer (a smaller baseball bat); we can draw out with a fuller, or we can use any combination of the above. We are limiting the amount

of metal that we have to move twice, so we are doing more with less effort.

The Theory in Practice

When you drive a piece of metal into the corner of an anvil (as in *Figure A*) it gives the same result as driving a fuller into the metal. (The fuller is shown for clarity.) We will use this technique in Steps 1 and 2 of making the tongs. The jaw of the tongs will be only as wide as the parent stock, $\frac{3}{4}$ inch, so any gain in width will have to be forged back into the stock. Using the corner of the anvil in this way, we are following the cow poop theory and using a “baseball bat” to keep any increase in width to a minimum.

In *Figure B*, the smith holds the piece flat on the anvil and delivers a half-faced blow.



Metal supported on the anvil spreads 360 degrees, and unsupported metal is driven down the side of the anvil. The result is termed a “set transition,” as if it had been put there with a set hammer. This is the “both feet” part of the cow poop theory, which we will use in steps 4 and 5. These examples demonstrate how techniques that look similar yield different results.

There are a number of ways to make a pair of box jaw tongs. In some, the box extends all the way down the jaw. Others have half the box on each jaw (*Figure 1*). In

this example, the box is about $\frac{3}{4}$ inch long. With a sufficient gap behind the box we can pass stock in from the side, as shown in *Figure 2*. This is useful when we want to hold a bar for upsetting purposes. (The following example assumes that the smith does not have an abundance of tools. There are other ways to get the same results, but they are more tool-intensive. Stock for the following example was 8 inches of $\frac{3}{4}$ -inch square A36 hot-rolled bar.)

Hammer control is an issue during this project. The smith is advised to make sure that the hammer being used is well dressed, with no sharp edges, to deliver blended, overlapping blows and improve the overall finish of the piece. (Measurements given are approximate.)

Steps One through Five

Working on the near side of the anvil, place a chalk mark on the anvil at about the $1\frac{1}{4}$ inch mark. Place the end of the bar against this mark, lower your tong hand, and deliver the hammer blows in the direction of the arrow in Step 1. Turning the bar 180 degrees over and working on the off side of the anvil, position about $\frac{3}{4}$ inch of the bar over the edge, lift your tong hand a little, and deliver your blows in the direction of the arrow (Step 2). Take care to avoid hitting the shoulder that you formed in Step 1. Work out the resultant kinks on the near side. At this stage do not correct any gain in width (Step 3). You will reduce this dimension in Step 4.

If you hold your tongs in the left hand, turn the top of the stock 90 degrees to the left from Step 3. Move out to the off side of the anvil. While holding it flat on the anvil, orient the piece approximately 45 degrees off the edge of the anvil (Step 4), deliver half-faced blows, and, moving further back onto the anvil, full-faced blows. Stop when the stock is an even $\frac{3}{8}$ inch thick. The stock will tend to creep a little over the rounded edge of the anvil, so start a little further back than you would like.

From Step 4, turn the stock 90 degrees to the left. Move the bar out about $\frac{7}{8}$ inch, lift

Figure 1



Figure 2



Step 1



Step 2



Step 3



Step 4



Step 5



your tong hand, and deliver hammer blows in the direction of the arrow (Step 5). This will form the back edge of the boss, or hinge plate. Maintain the angle and dress the boss. After completing Step 5, you have finished with the box jaw side of the pair of tongs.

Steps Six through Nine

We must now work on the opposite end of the bar to make a flat jaw side. This is identical to the previous side, except that chalk mark on the anvil moves back about $\frac{1}{4}$ inch or so and Step 2 is omitted. Step 7 shows the result clearly. After the second jaw is completed, the bar must be cut in two and scarfed for a lap weld. Placement of the scarf is important. As you look at the jaws, there is only one flat side. I have found that this needs to be on the anvil at the time of welding to make the weld go a little easier. Keep the flat side uppermost as you make the scarf, to make sure that the scarf has the correct orientation. Steps 7 and 8 show the welding progression.

Twenty inches of $\frac{1}{2}$ -inch diameter stock is used for the reins, which allows a little extra in case of mistakes. A jaw of the tongs is welded to the end of each rein. (If you are upsetting the ends of the $\frac{1}{2}$ -inch stock on the anvil, remember to upset both ends before making a scarf, otherwise you will have to upset the other end in the vise.) The completed weld is shown in Step 8. The reins taper from behind the boss to the ends. The length and shape of the reins is a matter of personal choice. If you are going to use the tongs for forge welding, you might want to have longer reins to avoid burning your hands!

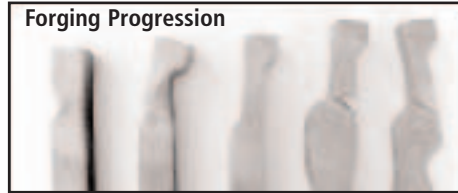
The cross peen, fuller, or a piece of round bar stock, is driven into the material at the end of the jaw. The order is important. First divide the material down the middle. Next, making sure that you don't create a cold shut, work one side out from the center to the edge. Come back and do the other side. (The result is shown in Step 9.) Tidy the end up a little. The next step is to form the box.

Finishing Up: Forming the Box

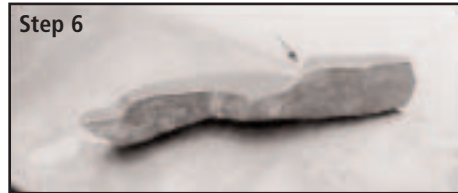
After spreading the mass to create the sides for the box, you need to fold them up to make the sides of the jaw. There are a number of ways to do this. I think the following way is the least troublesome and time-consuming.

The vise insert (opposite) shows a piece of 1-inch half-round welded to the back of a piece of angle iron. The angle iron is held in

Forging Progression



Step 6



Step 7



Step 8



Step 9



Vise insert



the vise by bailing wire. This allows it to pivot freely from both sides and allows you to move the insert along the jaw.

On the front of the angle iron, weld a piece of $\frac{1}{2} \times \frac{3}{4}$ inch stock, with the $\frac{3}{4}$ -inch side on the angle iron. This will act as a spacer as you form the box. Remove any sharp corners. You will find this tool very useful for gripping nonparallel stock. I have a number of different spacers and lengths of insert to choose from, to suit what I am working on. The angle iron will pivot around the 1-inch half-round as it attempts to grip something that is not parallel (see below).



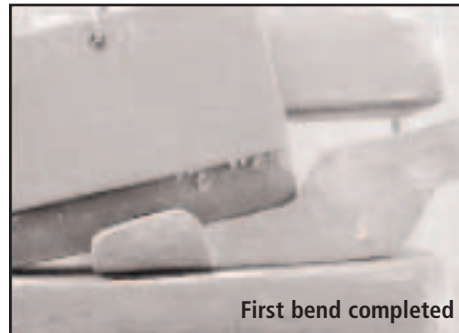
Take a heat on the tong jaw and clamp in the vise with the edge of the jaw and the edge of the spacer in line. Next, take a small set hammer (this could be a piece of square stock of the appropriate size with the edges rounded).



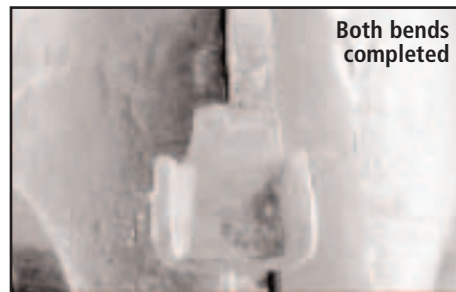
Starting as shown in Step 10, strike the set hammer and, lifting up as you go, bend the



side of the box over. Be careful not to shear the tab as you start the bend.

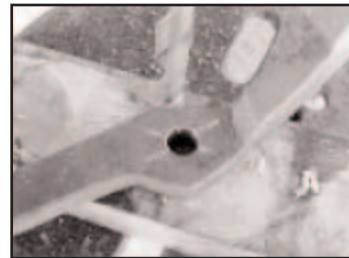


Take another heat on the jaws and coming in from the other side of the vise, bend the second side of the jaws. The result is shown below.



Making the Rivet Hole in the Boss

Mark center and drill. The wooden block acts as a spacer so the jaws can lay flat under the drill. Mine is a hand-powered post drill, and I do not need to clamp this piece as you



would for an electric drill. I prefer to drill these holes rather than punch them, because drilling does not distort the boss. Remember to slightly chamfer the drilled hole. I usually use a $\frac{5}{16}$ or $\frac{3}{8}$ -inch rivet to hold the tongs. ♦

*Mark Aspery operates the Mark Aspery School of Blacksmithing in Springville, California.
[www.http://markaspery.net](http://markaspery.net)*

NOTE: Photos supplied with this article were not good for detailed reproduction, especially in print. Contact the editor for an electronic copy of the original file.

Interesting Web Links

<http://home.earthlink.net/~bazillion/intro.html>

This site will tell you more than you want to know about springs.

<http://www.watchman.dsl.pipex.com/filemaking/index.html>

This site has great photos and information on making files both historical and contemporary.

<http://en.wikipedia.org/wiki/Blacksmith>

Great photos by Jack Delano among others.

<http://www.abc.net.au/news/stories/2009/03/16/2517219.htm>

Artisans from Australia and around the world are being called upon to forge gum leaves to add to a steel gumtree, which will be erected in one of the townships devastated by the February 7 fires.

<http://www.northwestwoodworking.com>

A great site for those of you who work in the wood shop and may be interested in improving your skills — and, it's local!

<http://www.slossfurnaces.com>

Sloss furnaces are a national historic landmark and well worth the visit.

Fort Vancouver Trades Guild 2008-09 Officers and Board Members

OFFICERS

President: Ted Anderson

4505 NW Lincoln Avenue
Vancouver, WA 98663
360-696-2648
nilst1@mac.com

V. President: Larry Coffield

308 SE 151st Street
Vancouver, WA 98661
360-892-2988
larrycoffield@spiretech.com

Secretary: Jeff Cawley

3421 SW Kelley
Portland, OR 97239
503-224-0214
jeffcawley@comcast.net

Treasurer: Bill Evans

1750 SW Carey Road
Portland, OR 97219
pecosbillevans@hotmail.com

ELECTED BOARD MEMBERS

Dennis Torresdal

20327 NW Sauvie Island Road
Portland, OR 97231
t4den@msn.com

Rob Lewis

Oregon College of Art and Craft
Wood Studio
8245 SW Barnes Road
Portland, OR 97225
800-390-0632

OFF-SITE COORDINATOR

Gary Lewis
112 NE 108th Avenue
Portland, OR 97220
503-256-0338
artillerymonger@msn.com



THE
forge
&
plane

The Forge & Plane is the official newsletter of the Fort Vancouver Trades Guild. Please send your comments, submissions, and suggestions to

Susan Gawecki, Editor
17706 NE Homestead Drive
Brush Prairie, WA 98606
360-666-3398

If you would like to be added to the electronic distribution list, please send an email request to

msgawecki@comcast.net

Unfortunately, due to postage and printing costs, distribution of printed copies is limited to guild members only.